



AgConnections

AGRICULTURAL SAFETY AND HEALTH

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NIOSH Agricultural Research Centers Update for Spring, 2006

Agriculture Research Program to be Evaluated

Excerpted from an interview with Dr. Fleming, NIOSH Office of Extramural Programs

Systematic program evaluation is the new business model for government that has evolved from GIP-PRA and the OMB Program Assessment Rating Tool (PART) http://www.whitehouse.gov/omb/part/2004_program_eval.pdf. NIOSH is committed to using an external expert review, one of the most valid and accepted evaluation methods, to assess the effectiveness of its research programs. The National Academies (NA) has been engaged to evaluate NIOSH's research programs with respect to their impact and relevance. This exceeds what the agency is required to do. The Agriculture Initiative is one of fifteen NIOSH program areas that will be evaluated. Dr. Roy Fleming, Assistant Director for Analysis, Translation & Operations in the NIOSH Office of External Programs, is working with the nine agriculture research centers and the National Children's Center to prepare the evaluation package, which will also include other grant awards and NIOSH intramural activities for the period 1990 - 2005. Using a logic model to identify resources, activities, outputs and outcomes, each Center will produce a report that describes the overall "program" value of the center from its inception to the present. The external review is slated to begin in August or Sept. 2006. See <http://www.cdc.gov/niosh/nas> for details.

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Agriculture Has Advanced in Technology; Remains High-Risk for Injuries, Illnesses, & Fatalities

Agriculture has advanced in technology, but it remains a high-risk sector for occupational injuries, illnesses and fatalities. Deliberately structured intervention research programs have addressed agricultural safety and health and are being evaluated. For example, an Agricultural Center Evaluation team (ACE) is working to develop and apply consistent collaborative evaluation methods. In 2006, The National Academies of Science will review and evaluate agricultural projects funded by the National Institute for Occupational Safety and Health.

The science of evaluation in public health has proliferated since the contributions of William Haddon who authored a landmark book on "Accident Research". The "Haddon Matrix" employing "two by two" tables, has become a widely accepted conceptual evaluation tool. One of Haddon's associates, Edward Suchman, produced a classic book "Evaluative Research" in 1967. A major contribution of these authors was to place the concept of "accident-proneness" into perspective, and to establish that injuries, as well as illnesses, had associated causal or risk factors that could be characterized.

Public health increasingly employed evaluation methods after 1970. Many external developmental aid programs in health and agriculture mandated evaluation of effectiveness, for example, health promotion programs in the Caribbean. In the US a team pro-

duced a "Manual for Self-evaluation of Programs Serving School-age Parents". The team learned that many such programs lacked coherent, defined, attain-

able, measurable goals and objectives, even though they had been in operation for some time. The diverse staff members providing specialized services to meet the health, educational, financial, and social needs of clients tended to see their own specialty contributions as top priority. This confusion interfered with cohesive team function. Attempts to evaluate program effectiveness and progress often were frustrating and inconclusive. Consequences of evaluations were sometimes destructive. Currently, evaluation results are more often and more properly used to promote program improvements.

Similar difficulties still arise in evaluating action-based research if there is a lack of up-front clarity about the purpose and expectations. Difficulties also occur if expectations change over time. Evaluation of work designed to produce descriptive data or feasibility results should be limited to the original goals. Today, more public health research involves evaluations of interventions to reduce risk in the workplace, and research produces results that translate into health improvements (R2P). Although it may be difficult to demonstrate reduction in agricultural work-related injuries or illnesses attributable to an intervention, evaluation should be an essential element in measuring past success and determining future priorities.



E. Lee Husting, Ph.D.
Scientific Program Administrator



Evaluating A Community-based ROPS Promotion Program

The work reported was completed at the University of Kentucky under CDC/NIOSH Cooperative Agreement U06/CCU412900.¹ PI: Hank Cole. The intervention program materials are available on the NASD website under the Kentucky ROPS Project.

A three-year community education program was developed and implemented in two rural Kentucky counties to promote farmers equipping unguarded tractors with rollover protective structures (ROPS) and seatbelts. Two other counties served as controls. The program was developed and evaluated in partnership with intervention county community organizations and leaders.

Project outcomes and impact were evaluated through a series of studies. These included (1) ethnographic studies of key community players concerning their views of the impact of the program and their recommendations for its improvement; (2) monitoring equipment dealers' sales of ROPS in the two intervention counties and then interviewing the farmers who purchased the ROPS; (3) collecting data from SAF-T-CAB (a major supplier of retrofit kits) concerning its sales of ROPS to equipment dealers in the intervention and control counties; and (4) repeated measures of analysis of variance (ANOVA) on four dependent variables obtained from pre- and post-intervention telephone survey data gathered from random samples of 26% of 585 intervention county and 29.1% of 643 control county farmers. The ANOVA hypotheses were that compared to control county farmers a significantly greater proportion of intervention county farmers would:

1. Perceive a higher protective value for ROPS and seatbelts
2. Contemplate obtaining ROPS and seat belt protected tractors
3. Make efforts to acquire ROPS and seat belts for unguarded tractors
4. Retrofit or replace unguarded tractors with ROPS – equipped tractors

The project goals and activities were implemented as planned. The program materials were widely disseminated, evaluated, and found to stimulate interest in the issue of tractor overturns and the role of ROPS and seatbelts for reducing risk of injury and economic loss. Tractor equipment dealer records revealed a total of four ROPS sales across all four counties in the year prior to the intervention. Three years and nine months from program implementation, dealers in the two intervention counties had sold 81 ROPS to 79 farmers. For approximately the same period, SAF-T-CAB records showed 50 ROPS sales to equipment dealers in the two intervention counties and 10 to dealers in the two control counties.

The repeated measures of ANOVA of the telephone survey data confirmed the first three hypotheses. Intervention county farmers rated the

injury protection value of ROPS higher, exhibited greater contemplation about acquiring ROPS, and made a greater effort to obtain ROPS than did control farmers. No significant overall difference in the percent of ROPS-equipped tractors acquired was found for intervention and control county farms. Intervention and control counties were then individually examined for percent of ROPS retrofits acquired (see Table 1). The 95% confidence intervals revealed that intervention county 02 and control county 04 acquired significantly more ROPS tractors than did control county 03. Subsequent investigation revealed that an equipment dealer in control county 04 implemented a successful ROPS-retrofit effort after one of his customers was killed in a tractor overturn. Intervention county 02 was better organized and more effective in program implementation than Intervention county 01.

The study illustrates three points. First, community educational interventions are likely to be more effective to the degree that community members are involved in developing and implementing the program. Second, multiple evaluation methods are necessary to assess the degree to which a program is implemented and with what degree of impact. Third, community-trial interventions are never as clean and neat as classical laboratory studies. Replication of both intervention and control groups is desirable. If only one control and one intervention county had been used in this study the effective intervention activities mounted by intervention county 02 and the control county 04 equipment dealer could have obscured the effectiveness of either the planned project intervention and/or the unanticipated equipment dealer's equally effective intervention.

Table 1: Percent increase in ROPS-equipped tractors by county pre- to post-intervention

	Intervention		Control	
County ID	01	02	03	04
Percent	8.3%	14.8%	5.0%	12.5%
95% CI	5.6-12.2	11.0-19.6	3.0-8.1	9.2-16.7

¹ The work reported was completed at the University of Kentucky under CDC/NIOSH Cooperative Agreement U06/CCU412900. Cole was the PI. The intervention program materials are available on the NASD website under the Kentucky ROPS Project. This article was abstracted from the 2001 Kentucky ROPS Project Final Report by H. P. Cole and S. C. Westneat.



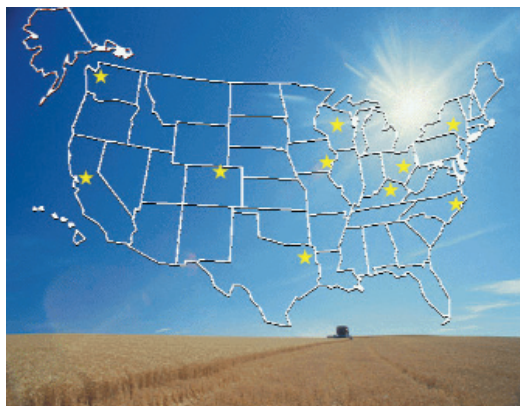
Agricultural Health and Safety Centers Evaluation Project

HI-CAHS Center

In the fall of 2004 NIOSH funded an evaluation contract, submitted by High Plains Intermountain Center for Agricultural Health and Safety (HICAHS), to undertake both program monitoring and outcome assessment on ten research, outreach and education Centers collectively known as the Agricultural Occupational Health and Safety Initiative. The Initiative includes 9 Agricultural Centers and the National Children's Center which together undertake research, develop prevention programs and provide services across ten public health regions. The mission of these Centers is to reduce injury and disease in one of the most hazardous occupations in the United States, agricultural production.

This contract renewed the Agricultural Center Initiative evaluation effort. Each Center designated a representative to attend workshops which took place in Fort Collins, Colorado during January and June of 2005. The Agricultural Center Evaluation team (ACE) was charged with revising and continuing the program monitoring approach to document Initiative accomplishments. In addition, the contract called for two pilot cross-center outcome areas that each includes at least three similar Center projects. Two project areas have been identified by the team as: 1) High School Agricultural Health and Safety Curriculum and 2) Professional development for those providing health and safety services to agricultural workers and their families. A report documenting the first fiscal year of this evaluation project was distributed January, 2006.

The staff at HICAHS would like to thank each member of the ACE team for their time, travel, ideas and efforts in reinstating the Agricultural Health and Safety Center Evaluation project. This project is possible because of a truly dedicated and collaborative team. ACE team members include: Sue Ackerman, Cynthia Brundage, Vicky Buchan, Angi Buchanan, Ruthie Fairbanks, Regina Fisher, Becky Foster, Karen Gilmore, Marcy Harrington, Stacey Holland, Helen Holmquist-Johnson, Lee Hustung, Chris Leck, Ketty Mobed, Teri Palermo, Joe Petrik, Wayne Sanderson, Tim Stock, and Marlene Thompson.



Agricultural Research

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Questions for Dr. Fleming:

How will the results of the evaluation of the NIOSH Agriculture Initiative be used? RF: First is to improve the delivery of occupational safety and health information, items, and services to the worker. Dr. Howard's (NIOSH Director) Research to Practice (R2P) emphasizes the need to focus on translating research findings to actual practices adopted by workers. The report will guide plans for enhancements to the agriculture program over the next 10 years.

What components of the agriculture research program are of greatest interest to the review panel? RF: Surveillance, research, intervention, and outreach are the main areas to be assessed. This isn't solely about the success of each center individually; the integration of work across centers and a synthesis of the cross-center value of the Agriculture Research Center program will also be considered.

How and when will the review panel report be distributed? RF: It will be publicly available on the NA website <http://www8.nationalacademies.org/cp/default.aspx> in spring of 2007.

How does this evaluation of the NIOSH agriculture initiative compare with previous program evaluations? RF: This will be more comprehensive than previous evaluations. It will cover all intramural and extramural programs for a longer period of time. In addition, it is focused on intermediate and end outcomes, in addition to processes.

How will other programs benefit from this evaluation process? RF: The framework designed by the NA review panel establishes a methodology that can be used by programs in the future to identify the metrics for evaluating program progress, value, and success. Researchers and administrators will be better able to plan their work to include intermediate (2-5 year) measures and go beyond output to actual outcomes that benefit workers.

Training Program Evaluation with Hispanic Workers

PNASH Center

How can I receive meaningful feedback from my Hispanic participants when it is not possible to interview?

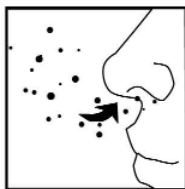
This question frames a common dilemma for those of us outreaching to Hispanic workers. Hispanic farm workers are often semi-literate, and with a growing indigenous workforce, their native language may not be Spanish.

When trying to gain feedback from a large group of Hispanic workers, such as in a training program, we need

to pursue innovative techniques. At the PNASH Center we have been using two companion tools with success:

- Illustration-based answer sheets (see below)
- Audio tape or CD survey.

These self-administered and user-friendly tools meet a variety of survey needs, but keep in mind that their development requires iterative audience field-testing. For more information: 206-616-1958, .



This evaluation tool asked subjects "What is the most common way handlers are exposed to pesticides while handling pesticides at work?" The audiotape then gave verbal prompts cued to the answer sheet's illustrations: mouth, breathing, skin, I don't know.

Agricultural Research Center Initiative Centers funded as of October 1, 2001

Great Lakes Center for Agricultural Safety and Health
Ohio State University
590 Woody Hays Drive
Columbus, OH 43210
(614) 292-9455
Center Director: Thomas Bean, EdD

Great Plains Center for Agricultural Health
100 Oakdale Campus, #124 IREH
The University of Iowa
Iowa City, IA 52242-5000
(319) 335-4887
Center Director: Wayne Sanderson, PhD, CIH

High Plains Intermountain Center for Agricultural Health & Safety
154 B Environmental Health Bldg.
Colorado State University
Fort Collins, CO 80523-1681
(970) 491-6151
Center Director: Steve Reynolds, PhD, CIH

National Children's Center for Rural & Agricultural Health & Safety
National Farm Medicine Center
1000 North Oak Avenue
Marshfield, WI 54449-5790
800-662-6900
Center Director: Barbara C. Lee, PhD

Northeast Center for Agricultural Safety & Health
One Atwell Road
Cooperstown, NY 13326
(607) 547-6023
Center Director: John May, MD

Pacific Northwest Agricultural Safety & Health Center
Department of Environmental Occupational Health Sciences
Box 357234
University of Washington
Seattle, WA 98195-1452, (206) 685-8962
Center Director: Richard Fenske, PhD, MPH

Southeast Center for Agricultural Health and Injury Prevention
Department of Preventive Medicine
University of Kentucky
1141 Red Mile Road, Suite 102
Lexington, KY 40504-9842
(859) 323-6836
Center Director: Robert McKnight, MPH, ScD

Southern Coastal Agromedicine Center
East Carolina University
West Research Bldg., 1157 VOA Site C Road
Greenville, NC 27858
(252) 744-1000
Interim Center Director: Kristen Borré, Ph.D.

Southwest Center for Agricultural Health, Injury Prevention, & Education
The University of Texas Health Center at Tyler
11937 U. S. Hwy. 271
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(903) 877-5896
Center Director: Jeffrey L. Levin, MD, MSPH

Western Center for Agricultural Health & Safety
University of California
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(530) 752-4050-5253
Center Director: Marc Schenker, MD, MPH

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LATEST CATCH



National Library of Medicine Unveils "Tox Town"

Tox Town (<http://toxtown.nlm.nih.gov/>) announces the release of its newest location, the Farm Scene. Visitors can explore the new Farm neighborhood to learn about the environmental health concerns of agricultural and rural communities. Tox Town illustrates the unique issues faced by farms related to hazardous agricultural chemicals, toxic gases from animal waste, rural dumping, and farm safety. The Farm features a shed, barn and silo, crop fields, large-scale feeding operation, landfill, agricultural runoff, farm pond, meat processing, tree farming and logging, off-road vehicles, and nearby urban sprawl. Each location lists toxic chemicals that might be found there and answers questions like "Why are farm ponds a concern?" and "What are feeding operations?"

Tox Town is a product of the Division of Specialized Information Services (SIS), National Library of Medicine, National Institutes of Health. Professionals with an interest in agricultural and environmental concerns are urged to take the time to review this site and provide SIS with your suggestions and comments so that they can continue to improve the Farm Scene and present relevant information.

NIFS will hold its 2006 annual conference, "Meeting Challenges Together" at the Blue Harbor Resort in Sheboygan, WI June 25-30, 2006. The conference will be hosted by the National Farm Medicine Center. Several registration options are available, check the internet website for full details, <http://www.marshfieldclinic.org/education/pages/default.aspx>

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